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(54) HIGH STRENGTH MARTENSITIC STAINLESS STEEL EXCELLENT IN RUST RESISTANCE AND DRILLING TAPPING SCREW

(57)Abstract:

PURPOSE: To develop high strength martensitic stainless steel wire rod excellent in rust resistance by subjecting hot rolled wire rod stainless steel having a specified compsn. to annealing treatment for two times under specified temp. conditions.

CONSTITUTION: The hot rolled wire rod of stainless steel having a compsn. contg., by weight, 0.13 to 0.20% C, 0.1 to 0.5% Si, 0.1 to 2.0% Mn, 1.0 to 2.5% Ni, 12.0 to 16.0% Cr, 1.3 to 3.5% Mo and 0.06 to 0.13% N, and the balance Fe and in which ARI value expressed by the formulae 1, 2 and 3 is regulated to 16 to 21%, D1 value to <0%, M1 value to <0% and W1 value to <26.0% or contg. 0.001 to 0.010% B or 0.05 to 1.0% Ti and 0.05 to 1.0% Nb and in which W2 value expressed by the formula 5 is regulated to <26.0% is subjected to annealing for two times of holding under heating at 700 to 800° C and 600 to 750° C for 0.5 to 50hr. Cr carbides having $\cdot 0.2\mu\text{m}$ grain size are precipitated, by which the martensitic stainless steel having $\cdot 950\text{N/mm}^2$ tensile strength and excellent in rust resistance can be produced.

$$\text{ARI} = \text{C} \times 100 / (\text{Si} + \text{Mn})$$

$$\text{D1} = \text{C} + 1.2\text{Mn} + 0.4\text{Si} + 1.2\text{Al} \\ - (0.5\text{C} + 1.2\text{Si} + \text{Ni} + 0.1\text{Mn}) - 10.0$$

$$\text{M1} = \text{Ni} - 2\text{C} + 0.12\text{Mn} + 1.2\text{Si} + 0.05(\text{C} - 1.5\text{Si} - 1.4\text{Mo}) \\ - 25.0$$

$$\text{W1} = 2\text{Mo} + 1.2\text{C} + 6\text{Mn} + 6\text{Si} + 3\text{Ti} + \text{Nb}$$

$$\text{W2} = 2\text{Mo} + 1.2\text{C} + 6\text{Mn} + 6\text{Si} + 3\text{Ti} + \text{Nb}$$

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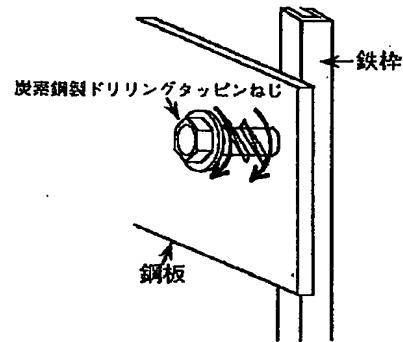
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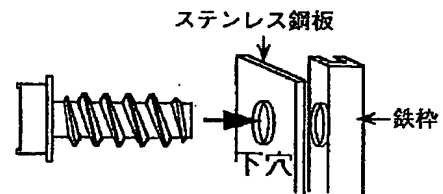
【図1】



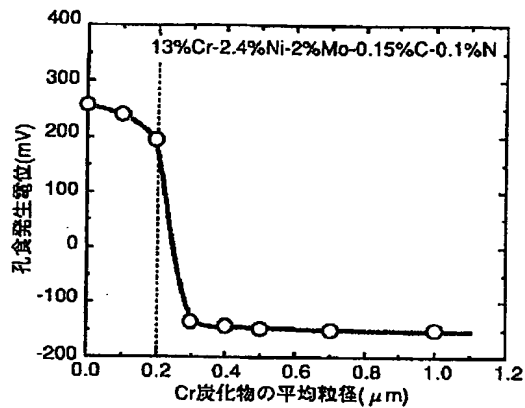
【図2】



【図3】



【図4】



フロントページの続き

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